



*RENEWABLE
ENERGY
PROGRAM*

CALIFORNIA
ENERGY
COMMISSION

RENEWABLE ENERGY PROGRAM

2002 Biennial Report

COMMITTEE REPORT

MAY 2002
P500-02-010



Gray Davis, Governor

CALIFORNIA ENERGY COMMISSION

OFFICE OF THE COMMISSIONERS

1516 NINTH STREET

SACRAMENTO, CA 95814-5512

May 31, 2002

Members of the Senate Energy, Utilities and Communications Committee
Members of the Senate Budget and Fiscal Review Committee
Members of the Senate Appropriations Committee
Members of the Assembly Utilities and Commerce Committee
Members of the Assembly Budget Committee
Members of the Assembly Appropriations Committee
California State Capitol Building
Sacramento, California 95814

Re: California Energy Commission's 2002 Biennial Report Concerning the Renewable Energy Program

Honorable Members:

Public Utilities Code (PUC), Article 5, Section 445(g), requires the California Energy Commission to submit biennial reports on the Renewable Energy Program. Enclosed is the *2002 Biennial Report: Renewable Energy Program*, covering the period January 1, 1998 through March 31, 2002. As reflected in the report, the Energy Commission continues to make significant progress in implementing the Renewable Energy Program.

Should you have any questions or comments concerning this report, please contact Tim Schmelzer, Energy Commission Assistant Director of Governmental Affairs, at 654-4942.

Respectfully submitted,

ROBERT A. LAURIE
Commissioner and Presiding Member
Environmental and Energy Infrastructure
and Licensing Committee

ROBERT PERNELL
Commissioner and Associate Member
Environmental and Energy Infrastructure
and Licensing Committee

Enclosure

cc: California Legislative Analyst's Office

RENEWABLE ENERGY PROGRAM 2002 Biennial Report



Gray Davis
Governor

Mary D. Nichols
Secretary for Resources

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Introduction

The California Energy Commission (Energy Commission) is pleased to submit its **2002 Renewable Energy Program Biennial Report**, covering the Renewable Energy Program over the four years of its implementation (January 1, 1998, through March 31, 2002), in accordance with Senate Bill 90 (SB 90).¹

Senate Bill 90 requires the Energy Commission to submit a biennial report on the Renewable Energy Program to the Legislature on or before May 31, 2000, and on or before May 31 of every second year thereafter “regarding the results of the mechanisms funded pursuant to this section.” The reports shall include “a description of the allocation of funds among existing, new and emerging technologies; the allocation of funds among programs, including consumer-side incentives; and the need for reallocation of money among those technologies.” The report shall also address any reallocation of funds among existing, new, and emerging technologies and consumer-side programs.

Additionally, the reports must address the allocation of funds from interest on the accounts² and of the voluntary contributions made by utility customers. Finally, the mandate requires an update of any funds included in the accounts from a usage-based charge established by local publicly-owned electric utilities pursuant to Section 385(a).

Following a background summary and description of the allocation of funds regarding the Renewable Energy Program, this report is divided into four sections to address the requirements of SB 90 as follows:

Section I	Program Description and Results
Section II	Reallocation of Funds
Section III	Interest Expenditures
Section IV	Voluntary and Local Publicly-Owned Electric Utility Contributions

Section I of this report provides descriptions of each program account and the results of its activities. Section II includes a cumulative financial summary of the Renewable Resources Trust Fund, which contains the funds collected as of March 31, 2002, and discusses the details and conditions surrounding the Energy Commission's reallocation of funds among accounts. Section III provides details about how the interest funds that accrued on the Renewable Resources Trust Fund were spent, and Section IV discusses voluntary contributions and funds received from local publicly-owned electric utilities.

¹ Chapter 905, Statutes 1997.

² The Renewable Resources Trust Fund is divided into five accounts: Existing Renewable Resources Account, New Renewable Resources Account, Emerging Renewable Resources Account, Customer Credit Subaccount and Consumer Education Subaccount.

Background Regarding the Renewable Energy Program

In California's overall restructuring legislation, Assembly Bill 1890 ([AB 1890], Ch. 854, Stats. 1996), the Legislature expressed its intent to ensure that the transition to a competitive electricity market structure "preserves California's commitment to developing diverse, environmentally sensitive electricity resources." As a step toward this objective, AB 1890 required California's three major investor-owned utilities — Pacific Gas & Electric Company, Southern California Edison, and San Diego Gas & Electric — to collect \$540 million from their ratepayers. Bear Valley Electric Service, a publicly-owned utility, voluntarily opted to participate in the Renewable Energy Program. Funds are collected via a surcharge on electric bills (initially a four year period from January 1998 to January 2002) to help support renewable electricity generation technologies and help develop a renewable energy market.

Assembly Bill 1890 directed the Energy Commission to submit recommendations for allocating and distributing the \$540 million for renewable energy support. In response to this direction, the Commission submitted its *Policy Report on AB 1890 Renewables Funding*³ to the Legislature in March 1997. The rationale for the funding allocations is discussed in more detail in the *Policy Report*. The recommendations contained in the report reflected the following basic program design principles. Funding mechanisms should:

1. Be simple to administer;
2. Be performance and market-based;
3. Strive for economic efficiency; and
4. Encourage renewable energy projects to increase their competitiveness in the open market.

Because the market characteristics of the different sectors of the renewable energy industry identified in AB 1890 (existing, new and emerging) vary substantially, the Energy Commission determined that a "one-size fits all" approach would not be the best means to develop a sustainable renewables industry. The *Policy Report* therefore recommended distinct approaches for supporting existing, new, and emerging renewable technologies and included recommendations for customer-side activities designed to stimulate demand for renewable energy and to promote renewable energy technologies.

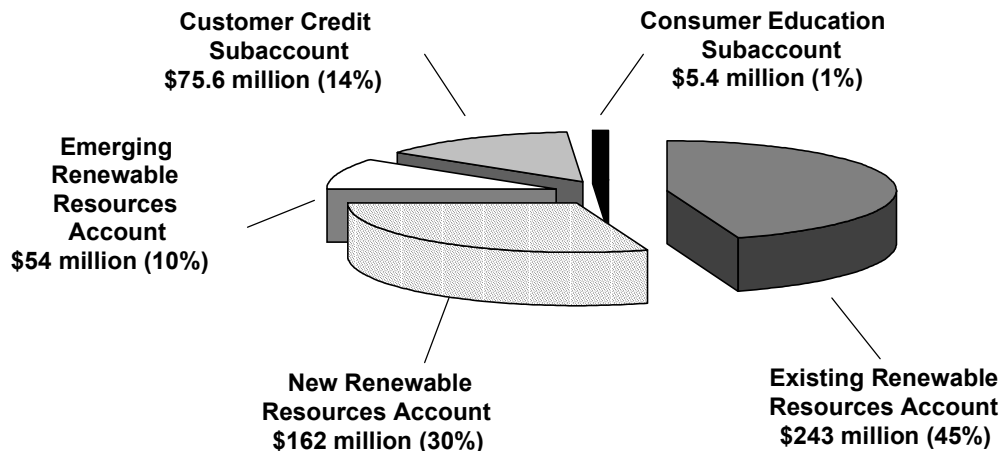
The recommendations outlined in the *Policy Report* were incorporated into SB 90, which was passed in October 1997. Senate Bill 90 created the Renewable Resources Trust Fund and directed the Energy Commission to distribute the fund through five distinct "accounts," consistent with the *Policy Report*. Each account targets a different need within the renewable energy industry. **Figure 1** shows how the funds were initially allocated to each account. In striving to move the renewable energy industry towards market competitiveness, the Renewable Energy Program disburses the funds to assist each market segment in a unique way as summarized below:

- Financial incentives support existing renewable facilities through a tier system of varying incentive amounts based on the market competitiveness of the eligible renewable technologies.

³ Publication Number 500-97-002. March 1997.

- Financial support encourages new renewable electricity generation projects that are most likely to become competitive. Prospective new projects compete in auctions to receive a fixed production incentive.
- Capital cost buydowns assist customers who purchase renewable technologies for on-site generation. Reduced purchase costs encourage manufacturers and retailers to expand operations and reduce costs to consumers.
- Financial incentives allow renewable providers to provide electricity products to their customers at prices that are competitive with conventional electricity. Funds are paid via “customer credits” to renewable providers and passed on to their customers.
- Consumer education increases public awareness of renewable energy options and the benefits of renewable energy, and encourages purchases of renewable energy through information dissemination.

**Figure 1 - Renewable Energy Program Initial Funding Allocation
\$540 Million**



In September 2000, the Governor signed AB 995⁴ and SB 1194,⁵ which created the Reliable Electric Service Investments Act (RESIA) and extended the Renewable Energy Program until 2012. The RESIA directs that beginning January 2002 an amount starting at \$135 million per year is to be collected from the same ratepayers as those established under AB 1890. The RESIA also requires the Energy Commission to create an investment plan that recommends an allocation of the funds collected over the first five years of the collection period. The Energy Commission submitted those recommendations to the Legislature in June 2001 in a report titled, *Investing in Renewable Electricity Generation in California*⁶ (Investment Plan). The Investment Plan has been incorporated into SB 530, which is being considered by the Legislature during its 2001-2002 session.

⁴ Chapter 1051, Statutes 2000.

⁵ Chapter 1050, Statutes 2000.

⁶ Publication Number P500-00-022. June 2001.

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I. Program Description and Results

Existing Renewable Resources Account

The Existing Renewable Resources Account was initially allocated \$243 million for funding to renewable energy facilities in California that began operating before September 26, 1996. Funding in this account is divided into three tiers, intended to reflect the various degrees of competitiveness of the assorted renewable energy technologies. **Table I** shows the technologies and allocated funds for each tier on an annual basis. As illustrated, the available funds in this account decrease each year of the program to encourage renewable facilities to become competitive with conventional energy technologies.

Table I
Annual Funding, Target Prices and Caps

Tier	Technology		1998	1999	2000	2001	Total
Tier 1	Biomass, Waste Tire, Solar Thermal	Annual Funding (millions)	\$43.2	\$36.45	\$31.05	\$24.30	\$135.0
		Target Price (¢/kWh)	5.0	4.5	4.0	4.0/5.0 ⁷	
		Cap (¢/kWh)	1.5	1.5	1.0	1.0	
Tier 2	Wind	Annual Funding (millions)	\$21.60	\$18.90	\$16.20	\$13.50	\$70.2
		Target Price (¢/kWh)	3.5	3.5	3.5	3.5	
		Cap (¢/kWh)	1.0	1.0	1.0	1.0	
Tier 3	Geothermal, Small Hydro, Digester Gas, Landfill Gas, and Municipal Solid Waste	Annual Funding (millions)	\$12.15	\$10.80	\$8.10	\$6.75	\$37.8
		Target Price (¢/kWh)	3.0	3.0	3.0	3.0	
		Cap (¢/kWh)	1.0	1.0	1.0	1.0	
Total Funding			\$76.95	\$66.15	\$55.35	\$44.55	\$243.0

To be eligible for Existing Account funds, a facility must be physically located within California and registered with the Energy Commission as a renewable supplier. Once registered, facilities submit monthly invoices and are paid a cents-per-kilowatt-hour (cents/kWh) incentive for their eligible renewable generation. Payments are based on the lowest of three possible calculations:

- The difference between a “target price” and the market-clearing price for energy (different for each utility service territory),

⁷ Starting with the November 2000 payment cycle, the target price for Tier 1 increased to 5.0 cents/kWh.

- Available funds divided by total generation submitted (modified to account for differences in utility market prices), or
- A pre-determined cents/kWh cap.

Shortly after the program's January 1998 implementation, 162 renewable generating facilities registered with the Energy Commission as existing renewable suppliers. As of March 31, 2002, the number of registered renewable suppliers totaled 378. Of these, the Existing Account provided funding support for 273 suppliers, representing 4,400 megawatts (MW) of capacity.

The first payments to existing facilities, totaling \$2.6 million, were made in March 1998. By March 31, 2002, the Energy Commission had paid more than \$151 million in cumulative production incentives to existing projects.

New Renewable Resources Account

The New Renewable Resources Account was initially allocated \$162 million to support new renewable energy facilities in California that began operation after September 26, 1996. Since the commencement of the Renewable Energy Program in 1998, the New Account has awarded funding to 81 eligible new renewable projects through a series of competitive auctions.

In June 1998, the New Account held the first of three auctions for prospective developers of new renewable power plants. Participants submitted bids for the amount of funding assistance they anticipated would be necessary to build their projects, up to a cap of 1.5 cents/kWh. Bids also included an estimate of the first five years of electricity production, demonstration of site control, and a detailed project description with a list of necessary project permits and permitting agencies. In addition, unless they had already applied for their project permits, bidders were required to submit a bid bond equal to 10 percent of their total proposed award.

A total of 56 bids were received for the New Account's first auction, which were ranked from lowest to highest incentive amount requested. Bids were accepted until the available funds were depleted, resulting in \$162 million being awarded to 55 winning projects of varying renewable energy technologies. These projects are included in **Table II**, along with winning projects from two subsequent auctions.

In response to California's energy crisis, the Energy Commission decided to hold a second auction in November 2000. The \$40 million available to bidders through this auction were reallocated from the Existing Account rollover funds, which were available because market prices for electricity were high at that time. The design and rules for this auction were similar to those for the first, with one notable exception. To encourage projects to come on-line by summer 2001, the auction included a 10 percent bonus added to the bidder's requested award if the project came on line by June 1, 2001, and a system of penalties for coming on line after July 1, 2002. The 10 percent bonus was figured into each winning project's total funding award to ensure that the available \$40 million would not be exceeded in the event that all of the projects came on-line before June 1, 2001. Of the 28 bids submitted, 17 were awarded funding through this auction, four of which have been able to make the deadline and receive the bonus.

In anticipation of more rollover funds becoming available from the Existing Account, the Energy Commission released a notice for a third New Account auction in June 2001, with bids due in August 2001. This auction, like the second, included a 10 percent bonus for coming on-line early; in this case, by June 1, 2002. However, none of the winning projects will be able to meet this deadline. Forty-eight bids were received in response to the third Notice of Auction, with requests for funding totaling \$100 million. Nine bids were awarded funding before the available \$40 million was depleted.⁸

Table II
Summary of Winning Bidders from Three Auctions

Technology	Number of Projects	Capacity (MW)	Average Incentive (cents/kWh)	Conditional Award
Biomass	2	11.30	1.302	\$3,787,902
Digester Gas	1	2.05	1.390	\$1,148,210
Geothermal	4	156.90	1.282	\$80,331,618
Landfill Gas	23	81.08	1.134	\$28,368,015
Small Hydro	5	34.24	1.140	\$5,049,226
Waste Tire	1	30.00	0.650	\$6,574,921
Wind	40	986.08	0.842	\$107,948,266
Total	76	1301.65	1.106	\$233,208,158⁹

Project Status

As shown in **Table II**, the total number of projects with New Account funding awards currently stands at 76. Although 81 projects were awarded funding through the three auctions, five projects from the first auction have cancelled their awards due to reasons varying from inadequate fuel sources to unforeseen operations and maintenance costs.

Of the 76 active projects that won funding awards in the three New Account auctions, 35 are now on-line and producing energy. These projects are currently contributing 201 MW of new renewable generating capacity to California's energy supply. As of March 31, 2002, nine landfill gas facilities totaling 27.5 MW of capacity, two geothermal projects totaling 59 MW, one 16.5 MW wind project, one 7.5 MW biomass project, and one 9.9 MW small hydro project have received \$13.6 million in payments from the New Account. The remaining 21 operating facilities, totaling 80.6 MW of capacity, are technically on-line but have not yet received payments for reasons such as inadequate proof of generation, insufficient evidence of being on-line, or failure to provide engineers' certificates or to submit invoices for payment.

At the time of the first auction in June 1998, Public Utilities Code section 383.5(c)(2)(B) required projects participating in the New Account to be on-line by January 1, 2002 to receive

⁸ Similar to the second auction, the 10 percent bonus was added to each winning project's requested award in order to close the auction without exceeding the available \$40 million.

⁹ The total amount of conditional awards is less than \$242 million because (1) only four of the projects from the second auction and none from the third auction received the 10 percent bonus, which was calculated into all of the funding awards at the close of both auctions; (2) the funding awards for three of the five cancelled projects have not yet been reallocated elsewhere in the New Account; and (3) funds totaling \$6.2 million were reallocated from the New Account to the Emerging Account once it became apparent that many of the second and third auction projects would not receive their 10 percent bonuses.

five full years of incentive payments. Projects coming on-line later than that date could still receive payments, but for a shorter period of time – in effect penalizing those projects. Furthermore, late projects might result in awards being reduced or cancelled. **Table III** summarizes the payments issued for new projects as of March 31, 2002.

Many of the projects did not make the January 1, 2002 deadline. The uncertain energy situation in California has resulted in a number of obstacles that have caused numerous delays for these projects. The most prevalent obstacle to date is the difficulty project developers are experiencing in securing power purchase contracts, without which most projects cannot obtain project financing. Until this situation is resolved, most projects will likely continue to experience delays.

Table III
Summary of Payments Through March 31, 2002

Technology	MWs	MWs On-line	Total Payments	Total Funds Encumbered	Percent of Encumbered Funds Paid
Biomass	11.3	11.3	\$165,903	\$3,787,902	4.38%
Digester Gas	2.05	0	0	\$1,148,210	0.00%
Geothermal	156.9	59	\$7,378,537	\$80,331,618	9.19%
Landfill Gas	81.08	31	\$5,671,225	\$28,368,015	19.99%
Small Hydro	34.24	11.3	\$9,456	\$5,049,226	0.19%
Waste Tire	30.00	0	0	\$6,574,921	0.00%
Wind	986.08	88	\$386,701	\$107,948,266	0.36%
Total	1301.65	201	\$13,611,822	\$233,208,158	5.84%

In September 2000, Governor Davis signed AB 995 into law, which amended section 383.5(c) and allowed projects participating in the New Account to come on-line as late as January 1, 2007, and still receive five years of incentive payments. This allowance is contingent on the Energy Commission making a formal finding that the delayed on-line date resulted from “circumstances beyond the developer’s control.”

Twenty-one projects with funding awards from the first auction and 11 projects from the second auction experienced delays and were unable to begin generating electricity by the January 1, 2002, deadline. In order to incorporate the on-line extension allowed by AB 995 into the program, the Energy Commission has modified the guidelines for the New Account to establish a formal petition process for projects that are interested in filing for an extension.

For third auction winners, the Energy Commission has determined that the timing of the auction in itself constitutes circumstances beyond the project developer’s control for purposes of extending the funding awards of any projects that are not on-line by January 1, 2002. These projects will be automatically extended, but will still be subject to penalties if they come on-line after August 1, 2002. They could also have their awards further reduced or terminated if they are not on-line by July 2, 2003.

With the possibility of on-line date extensions that could allow them to receive their full funding awards from the Energy Commission, projects participating in the New Account are expected to continue to push forward in overcoming their obstacles toward coming on-line. Many have indicated that they could be operational by the end of 2002.

Emerging Renewable Resources Account

The \$54 million initially allocated to the Emerging Account is used to fund the Buydown Program, a multi-year program of rebates to buyers, sellers, lessors, or lessees of eligible emerging renewable electricity generating systems. Emerging renewable energy systems that are eligible to participate in the Buydown Program are small wind systems that are 10 kilowatts (kW) or less, photovoltaic (PV) systems, solar thermal electric systems, and fuel cell systems that utilize renewable fuels.

The Buydown Program is open to systems of all sizes, subject to certain conditions and restrictions, but was designed to favor small generating systems, such as those typically used by residential or small commercial and agricultural customers. At least 60 percent of the total program monies must be awarded to systems 10 kW or smaller in rated output. A minimum of 15 percent of the program funds must be reserved for systems rated at 10 to 100 kW or less. The remaining 25 percent of funding is available for systems 100kW or larger.

Rebates from the Buydown Program are intended to reduce consumers' initial net purchase cost of emerging renewable generating systems. The objective of reducing system cost is to stimulate substantial sales, encouraging manufacturers, sellers, and installers to further expand their production volume and operations. As a result of economies of scale, we can expect lower system cost over time.

Another objective of the Buydown Program is to promote the siting of small, reliable generating systems throughout California in locations where the electricity is both needed and consumed. To be eligible for rebates, these generating systems must be on the premises of customers of California's electrical corporations and of a size such that the produced electricity is expected to primarily offset part or all of the customer's electrical needs on these premises.

Account Activity and Status

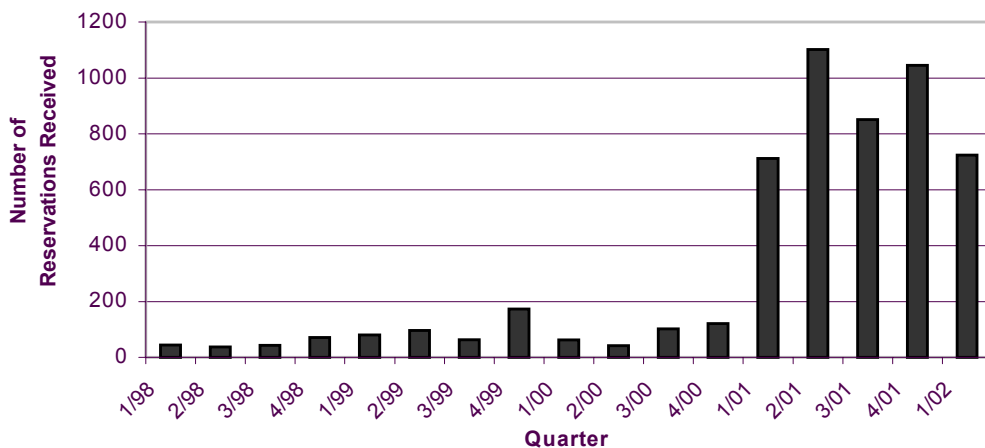
The original program was designed to reduce rebate amounts over time, beginning at the lesser of \$3 per watt in rated output, or 50 percent of eligible system cost, declining to \$1 per watt or 20 percent of cost as funds were expended.

Since the March 1998 beginning of the Buydown Program, 5417 rebate reservation applications have been received. It is notable that over 80 percent (4470 reservations) of the total reservations have been received since January 2001. **Figure 2** illustrates the number of reservations received each quarter since the program began, and illustrates the dramatic increase in activity during and since California's energy crisis.

Buydown program activity significantly increased in the fall of 2000, when San Diego Gas and Electric raised its retail rates to cover escalating electricity costs. By December 2000, the

prospect of imminent electricity supply problems became apparent to electricity customers across the state. The subsequent additional demand for solar and small wind systems put upward pressure on system prices. In March 2001, as reservation applications approached 250 per month (an eight-fold increase from an average of 30 per month during the last half of 2000), the Energy Commission decided to maintain the \$3 per-watt level for small systems and \$2.50 per-watt level for medium and large systems.

**Figure 2 - Reservation Activity by Quarter
March 20, 1998 through March 31, 2002**



In response to the electricity crisis, Governor Davis signed AB29x in April 2001. That legislation included a number of significant program impacts, including:

- Adding \$22 million to the Buydown Account to fund rebates for small systems;
- Providing \$8 million for rebates for publicly-owned utility customers installing small systems;
- Authorizing the Energy Commission to increase Buydown rebates; and
- Expanding net metering provisions for systems up to one MW.

In May 2001, the Energy Commission subsequently approved rebates for the lesser of \$4.50 per watt or 50 percent of total installed costs for all system sizes.

Senate Bill 90 specifies that up to three percent (\$16.2 million) of the \$540 million Renewable Resource Trust Fund that has not been used by other Renewable Energy Program accounts shall be transferred to the Emerging Renewable Account for rebates. In September 2001, the Energy Commission approved the reallocation of those funds, dividing the monies using the same percentage split among small, medium and large systems that was used with the Buydown Program's initial \$54 million allocation. With the additional \$30 million provided by AB29x, and the \$16.2 million fund reallocation (see Section II for details about fund reallocations among program accounts), the Buydown Program has grown from a \$54 million to a \$100.2 million incentive program.

The Energy Commission made payments totaling \$32.6 million to 2,342 completed systems participating in the Buydown Program, as of March 31, 2002. These systems include 2,222 photovoltaic (PV) systems, 118 wind systems, and two fuel cell systems, for a total of 8.2 MW of capacity. In addition to these completed systems, the Commission has approved 1,099 additional systems (representing 9.7 MW of capacity) that are in various stages of construction. The magnitude of recent growth in the Buydown Program is illustrated by comparing recent program activity to that in December 1999, when the Commission paid out only \$3.46 million in Buydown Program funds for 239 completed systems. The Buydown Program reservation and payment activity is summarized in **Table IV**.

Table IV
Buydown Program Reservation and Payment Activity

	TOTAL March 1998-March 2002
Completed Systems	
Number of Systems	2,342
Total Capacity (in kW)	8,234
Total Funds Paid (Million)	\$32.6
Approved Systems – Not Yet Completed	
Number of Systems	1,099
Total Capacity (in kW)	9,703
Total Funds Encumbered (Million)	\$38.9
Approved and Completed	
Number of Systems	3,351
Total Capacity (in kW)	17,937
Total Funds Encumbered and Paid (Million)	\$71.5

Senate Bill 90 requires the Energy Commission to “spot check” a sample of the systems installed through the Buydown Program to ascertain compliance with the program. The Renewable Energy Program's technical support contractor, Regional Economic Research, Inc. (RER), has visited 125 systems. Within the next two months it will be visiting an additional 25 to 27 sites to verify that the systems were properly installed and functioning.

In a related activity, Endecon Engineering, subcontractor to RER, has been investigating several systems that were identified as possibly under-performing during the earlier verification checks. Endecon also conducted four in-house reviews with retailers to provide recommendations on how those retailers could improve the quality of their installations.

In November 1999, the Energy Commission and the U.S. Department of Energy (DOE) began a jointly-funded monitoring program of PV and small wind systems. The DOE/California Energy Commission phase of the program was completed in June 2001, and a report on the program is available on the Energy Commission's website; the Commission is preparing a final report to DOE.

The Energy Commission has been providing several types of training through its technical support contractor. Endecon Engineering held six 2-day training sessions in 2001 on installing code-compliant PV systems, and eight workshops in 2002. The Commission also funded workshops on code-compliant PV systems for building officials, conducted by Endecon Engineering. Endecon offered several retailer-specific training sessions that focused on reviewing and recommending installation practices. The Commission expects to continue supporting such training sessions.

Customer Credit Subaccount

The \$75.6 million initially allocated to the Customer Credit Subaccount is used to foster market demand for renewable electricity. The Energy Commission distributes funds to registered renewable providers who deliver eligible renewable energy to qualifying customers and pass a “credit” on to those customers. The customer credit is a cents-per-kilowatt-hour discount for eligible renewable electricity purchases.

Program Structure

The customer credit is limited to customers within the service territories of Pacific Gas & Electric Company (PG&E), Southern California Edison (SCE), San Diego Gas & Electric (SDG&E) and Bear Valley Electric Service. Only those customers who choose to participate in the direct access market and purchase energy from a registered renewable provider, instead of their utility distribution company, may receive the customer credit.

Electric service providers submit applications to the Energy Commission to become registered renewable providers and are given separate registration numbers for each renewable electricity product they offer. A product consists of electricity from renewable sources or a mix of electricity from both traditional and renewable sources. Customer credits only apply to the portion of an eligible product that is generated by renewable energy.

Providers submit monthly performance reports that include data on sales to consumers and generation sources. The Energy Commission makes payments based on these monthly performance reports. Registered renewable wholesalers must also submit information documenting that the power they sell or broker is eligible for funding from the Energy Commission. Although wholesalers or power pools may register with the Commission to become registered renewable wholesalers, they are not eligible for funding. Electricity products may be eligible for customer credit funding when sold to an end-use customer by a registered provider.

Under program requirements, registered renewable providers must inform customers that they are receiving the customer credit on their electricity bills. Typically, providers incorporate the credit into the electricity price offered to their customers, rather than delivering a separate rebate. Registered renewable providers and wholesalers are also required to submit an annual report documenting their market activity to the Energy Commission, and verified by a third party. These providers and wholesalers are also subject to random spot audits.

At the start of the program, the customer credit level was set at the maximum of 1.5 cents per kWh to encourage market development. The credit level was set at 1.25 cents per kWh from

December 1999 through June 2000. The Energy Commission lowered the credit level to 1.0 cent per kWh beginning July 2000, due to increasing demand on funds. The credit level remained at this level through December 2001.

The Customer Credit Subaccount is not making payments on sales activity occurring in year 2002 pending passage of legislation to implement the Reliable Electric Service Investments Act (RESIA). The Renewable Energy Program anticipates that payments will be made retroactively for eligible renewable electricity sales in 2002 after this implementing legislation is approved. The Energy Commission does not plan to re-set the credit level until authorized by the Legislature to implement the RESIA legislation.

Market Activity

The Customer Credit Subaccount experienced considerable growth between 1998 through much of year 2000, and then began to contract in response to changes in the market. At the beginning of 2000, 21 registered renewable providers were offering 35 products. The number of registered providers increased to 29 providers, offering 48 products, by the end of December 2001. Since providers are not required to change their registration status when they exit the market, the number of registered providers overstates the number that were actually participating in the market. At the end of 2002, only five providers were actively serving customers, and four registered renewable wholesalers were participating in the program.

At the close of the third quarter of 2001, the California Public Utilities Commission (CPUC) implemented Senate Bill 1X, which directed the CPUC to suspend the right of retail customers to purchase energy through the direct access market. This suspension became effective on September 20, 2001, and prevents the registered renewable providers from signing up new customers to purchase renewable electricity.

From April 1998 through the end of 2001, the Customer Credit Subaccount supported the purchase of over 5.7 million MW-hours of renewable generation, from both existing and new facilities. Geothermal energy has dominated the renewable energy market, but other renewable sources were also offered. **Table V** represents the distribution of eligible generation supported by the Customer Credit Subaccount by fuel type, from 1998 through 2001.

As **Table V** illustrates, geothermal energy purchases accounted for over 75 percent of the total renewable generation purchases for all four years of the program. In the first year, geothermal energy accounted for over 80 percent of total generation purchased, with small hydroelectric accounting for 10 percent and biomass for 8 percent. Over the following three years, the amount of small hydroelectric purchases by registered providers dropped to one percent, while biomass increased in 1999 and 2000, then dropped again in 2001.

Although registered renewable providers did not claim wind generation purchases in the first year of the program, by the second year, wind accounted for two percent of all purchases, and remained at that level through the end of 2001. Landfill gas was first claimed by registered renewable providers in 2001, but represented only 0.15 percent of total renewable generation purchases. Additional data allowed staff to attribute the category of generic renewable generation to each specific fuel type, allowing for greater accuracy than in previous reports.

Table V - Eligible Generation by Fuel Type

Calendar Year	Biomass	Geothermal	Small Hydro	Wind	Landfill Gas	Generic	Total
1998	8%	82%	10%	0%	0%	0%	100%
1999	16%	79%	3%	2%	0%	0%	100%
2000	16%	77%	3%	2%	0%	2%	100%
2001	8%	88%	1%	2%	<1%	0%	100%

Figure 3 shows the number of customers receiving the customer credit by customer class on a semi-annual comparative basis for 2000-2001. As can be seen, the residential category of customers was most impacted by the crisis in the electricity market, with the number of customers dropping by half. The drop in non-residential/non-small commercial is due to the fact that in April 2001, the \$15 million cap on the cumulative amount of funds that non-residential/non-small commercial customers (large customers) may receive was reached. For this reason, non-residential/non-small commercial customers are represented only in the first two six-month periods in **Figure 3**. It should be noted, however, that large customers may continue to purchase renewable energy that would otherwise qualify for the customer credit, but they are no longer receiving the credit because funds are exhausted for this group of customers.

**Figure 3 - Number of Customers by Class
(Semi-annual comparison)**

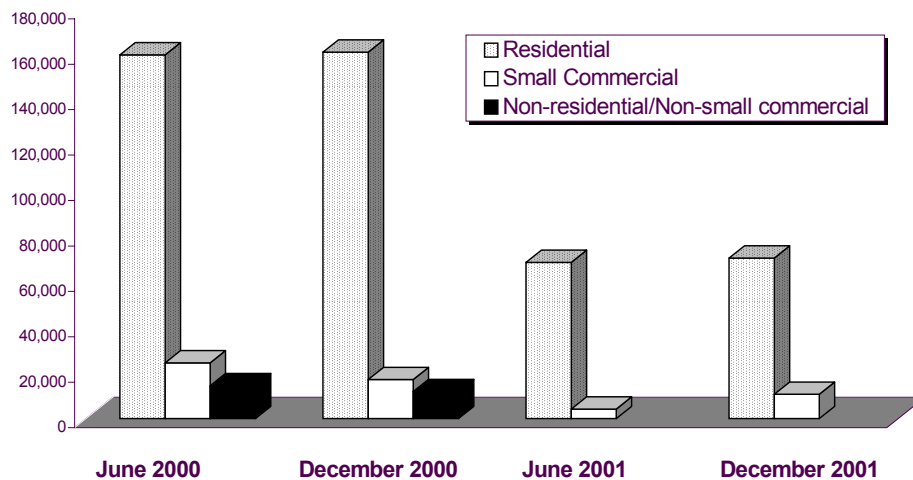
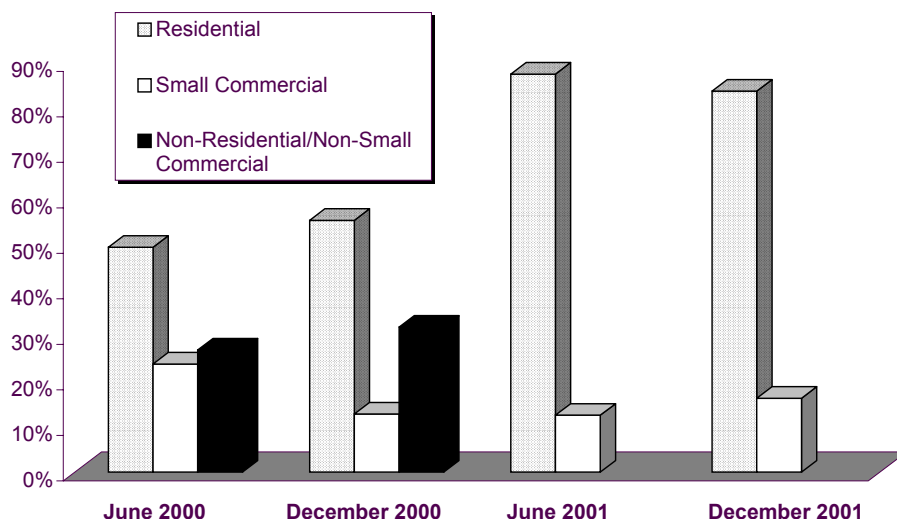


Figure 4 compares the distribution, in percent terms, of participating customer load by class on a semi-annual basis for 2000-2001. As **Figure 4** reflects, the proportion of load represented by residential customers increased after large customer load was no longer eligible for customer credit. Before the cap was reached, residential customers accounted for about half of the load, while large customers accounted for about 30 percent of the total; the remainder were small commercial customers. For the last two six-month periods, small commercial customer load represented less than 20 percent of the total load supported by customer credits.

**Figure 4 - Customer Load by Class
(Semi-annual comparison)**



In May 2000, the number of customers receiving customer credit peaked at over 216,000 customers. At the end of December 2001, there were 81,280 customers still participating in the Customer Credit Subaccount. Funds paid from the Customer Credit Subaccount totaled over \$58 million at the end of December 2001.

Consumer Education Subaccount

The Consumer Education Account uses one percent of the Renewable Resource Trust Fund provided under AB 1890, or \$5.4 million, to support a consumer education and marketing campaign. As mandated by SB 90, the money is to be used “... to promote renewable energy and to disseminate information on renewable energy technologies ... and to help develop a consumer market for renewable energy and for small-scale emerging renewable energy technologies.”

The three primary goals of the Renewable Energy Consumer Education Program are to:

1. Raise consumer awareness of renewable electricity generation options and their benefits,
2. Increase the purchases of small-scale emerging renewable technologies, and
3. Leverage strategic alliances and partnerships with organizations connected to renewable energy in California.

Account Activity

The Energy Commission adopted the *Renewable Energy Consumer Education (RECE) Marketing Plan* in February 1999. The *Marketing Plan* outlined two specific consumer markets for renewable energy: renewable electricity ("green power") from the grid, and distributed

emerging renewable energy technology systems. Because of the different promotional needs of the green power market and the market for emerging renewable energy generating systems, separate strategies and tactics were established for each.

In March 1999, the Energy Commission contracted with the Renewable Energy Marketing Board (REMB) to implement marketing activities and outreach for the green power market. REMB and its coalition of partners conducted grass roots and media activities in targeted communities throughout California.

REMB developed a cable television advertisement to educate consumers about the environmental damage caused by conventional electricity generation, and about consumers' option to switch to a renewable electricity provider. The ad ran in Santa Monica, Oakland, Contra Costa County, Northern San Diego and Santa Barbara. In conjunction with the television ad, a series of mail pieces were developed and distributed providing contact information for California electric service providers marketing green power. Additional outreach was conducted to assist businesses, food cooperatives, and local governments switch from their electric utilities to providers offering green power.

The initial focus for the emerging renewable technologies market was to gain a better understanding of the market and determine how to effectively promote these technologies to consumers. Based on research findings, staff developed various targeted information pieces for distribution. One publication that is popular with consumers is *Buying a Photovoltaic Solar Electric System: A Consumer Guide*. The *Consumer Guide* outlines basic financial, technical and economic information about photovoltaic systems. Other materials staff developed include fact sheets on renewable energy, solar photovoltaics, wind, fuel cells, and solar thermal electricity systems.

Two grant solicitations have been conducted since the beginning of the Consumer Education Program. Twelve entities have been awarded grants totaling approximately \$1 million to support consumer education and outreach activities for the renewable energy market. Grant projects include:

- Assistance to food cooperatives in installing photovoltaics on their stores and information outreach to their members about the benefits of renewable energy;
- A buying guide developed for consumers interested in small wind energy systems, and a direct mail outreach campaign;
- Outreach and technical assistance targeted to local governments;
- Educational curricula for schools;
- Media outreach and articles;
- "This Renewable House," a 30-minute video;
- Public service announcements (PSAs); and
- Website development and support.

The Energy Commission is also directing a statewide renewable energy public awareness campaign. Market research was conducted to determine the best messaging strategies and most effective outreach activities needed to educate Californians about renewable energy. This research was followed by eight focus groups to further refine concepts and messages for California residents and business-owners.

A new graphic look and messages were introduced for outreach materials. Previous materials are being updated, and new materials are being created in response to consumer needs. For example, a brochure about the new state tax credit for solar energy systems has been in high demand, and its existence illustrates how changing market needs help shape the materials the Energy Commission develops for consumers.

Participation in statewide events is an important component of the outreach program. Staff has participated in Home and Garden Shows in Santa Clara and San Diego, and in Earth Day events in Concord, San Diego, Berkeley, Los Angeles, and Santa Barbara. Several additional events and shows are planned for the remainder of 2002.

Staff is releasing a third funding solicitation for grant projects. This solicitation will use most of the remaining \$5.4 million in funds allocated from SB 90. Pending the passage of AB 530, staff will revise the Consumer Education *Guidebook* to ensure that it reflects the current state of the market and addresses the needs for renewable energy consumer education.

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Section II Reallocation of Funds

The Energy Commission is authorized¹⁰ to reallocate funds in the Renewable Resource Trust Fund among accounts in a manner consistent with the 1997 *Policy Report*, which states that "By the end of 2001, it will become apparent whether rollover funds are not needed in their own accounts and can be reallocated elsewhere. The first three- percent of the total...funding for renewables, if available as rolled over funds at the end of 2001, will be allocated to emerging technologies. Any remaining funds will be...allocated based on an assessment of market conditions by the end of 2001." Senate Bill 90 provides that "money may be reallocated without further legislative action among existing, new, and emerging technologies and consumer-side programs in a manner consistent with the *Report*."

It was noted in the Energy Commission's *2000 Renewable Energy Program Biennial Report*¹¹ that there was no need to reallocate funds between accounts at that time. However, high electricity prices in 2000 and 2001 sharply limited payments from the Existing Account, and triggered the Commission to authorize several reallocations among accounts. **Figure 5** shows how the funds have been reallocated among accounts in the Renewable Resource Trust Fund as of March 31, 2002.¹²

In an effort to bring new electrical capacity on-line in 2001, the Commission decided to shift funds from the Existing Account to the New Account. In October 2000, the Commission reallocated up to \$40 million to the New Account for a second auction, and additionally authorized up to \$40 million in the second quarter of 2001, for a third auction. The actual transfer of funds to the New Account may not occur until the winning projects are on-line and eligible to begin receiving payments.

The Energy Commission responded to the energy crisis and its effects on the renewable energy industry in part by deciding to reallocate program funds from under-subscribed accounts to accounts that need increased funding. Of the \$40 million that had been reallocated to the New Account to fund the second auction, \$6.2 million was not needed for that purpose and thus was redirected to the Emerging Account. The Commission also reallocated \$10 million from the Customer Credit Subaccount to the Emerging Account.

Assembly Bill 29X, passed in April 2001, ordered that \$15 million from the Renewable Resource Trust Fund be reallocated to the Emerging Account for additional Buydown rebates. The Energy Commission determined that these funds should be reallocated from the Existing Account.

A summary of the cumulative funding and expenditures for the Renewable Resource Trust Fund as of March 31, 2002, including inter-account reallocations, is presented in **Table VI**.

¹⁰ Public Utilities Code §383.5, subdivision (g). In some cases, the actual amount of funds reallocated will depend upon project needs and status.

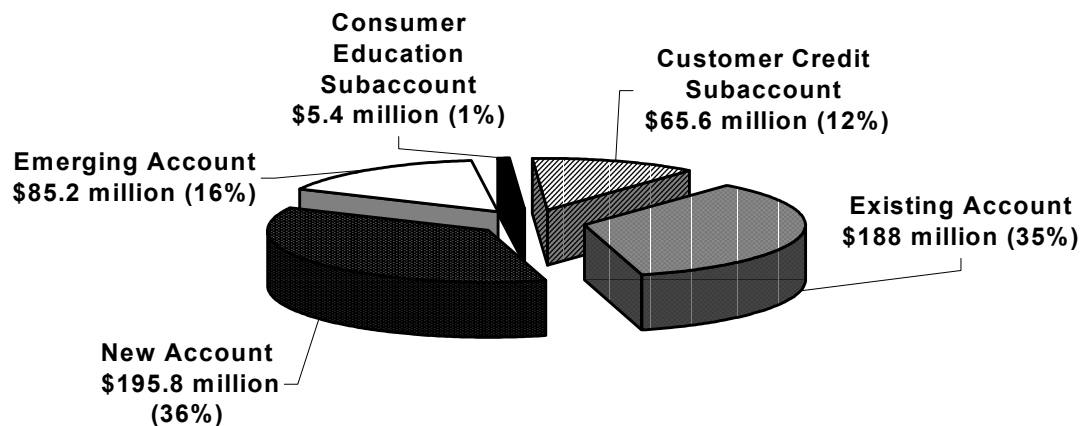
¹¹ Publication number P500-00-015. May 2000.

¹² Figure 5 does not include the \$15 million transferred to the Emerging Account from the General Fund pursuant to AB 29X, nor the (up to) \$40 million the Energy Commission authorized for reallocation from the Existing Account to the New Account for the third auction.

**Table VI - Renewable Resource Trust Fund
Cumulative Funding and Expenditures as of March 31, 2002
(\$ Millions)**

	Existing Account	New Account	Emerging Account	Customer-Side Account		Program Total
				Customer Credit	Consumer Education	
Collected Funds ¹³	240.445	159.213	68.226 ¹⁴	74.052	5.323	547.272 ¹⁵
Total Disbursements	(151.732)	(13.612)	(32.570)	(58.797)	(2.223)	(258.933)
Inter-Account Reallocations	(55.000)^{16,17}	33.800¹⁸	31.200¹⁹	(10.000)²⁰	0.000	0.000
Current Balance	33.713	179.401	66.856	5.255	3.100	288.339
Encumbrances	0.000	(179.401)	(38.899)	0.000	(3.100)	(222.975)
Unencumbered Funds	33.713	0.00	27.957	5.255	0.00	66.939

**Figure 5 - Renewable Resource Trust Fund Reallocations
\$540 Million**



¹³ The "collected funds" amounts shown for each account are slightly less than the amounts reported in the Energy Commission's April 2002 *Quarterly Report to the Legislature* (Publication Number P500-00-007v9) because \$3 million in funds collected from utilities pursuant to the RESIA is not included.

¹⁴ Includes \$15 million transferred from the General Fund to the Emerging Account pursuant to AB 29X.

¹⁵ Includes \$13,447 in voluntary contributions. Does not include funds from accrued interest or contributions from Bear Valley Electric Service.

¹⁶ To date, the Energy Commission reallocated up to \$40 million from the Existing Account to the New Account for the second auction, and authorized the reallocation of up to \$40 million for the third auction.

¹⁷ AB 29X ordered the reallocation of \$15 million from the Renewable Resource Trust Fund (Existing Account) to the Emerging Account.

¹⁸ The Energy Commission reallocated \$6.2 million from the New Account to the Emerging Account, reducing a previous \$40 reallocation to \$33.8 million.

¹⁹ See Footnotes 17, 18 and 20.

²⁰ The Energy Commission reallocated \$10 million from the Customer Credit Subaccount to the Emerging Account.

Section III Interest Expenditures

Senate Bill 90 requires the Energy Commission to address the allocation of funds from interest on the Renewable Resources Trust Fund in its biennial reports for the Renewable Energy Program. Interest funds, like voluntary contributions, are not allocated among the program accounts. As of March 31, 2002, a total of \$20,969,828 in interest had accrued on the Renewable Resources Trust Fund. Expenditures totaling \$ 7,595,560 were made from these funds, with a remaining balance of \$13,374,269, as summarized on a percentage basis in **Figure 6** and detailed by fiscal year in **Table VII**.

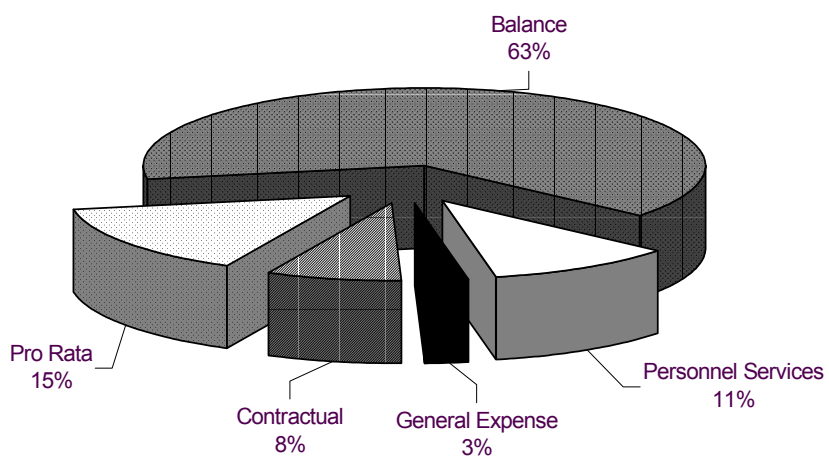
Expenditures from the interest accrued on the Renewable Resources Trust Fund were directed to four specific areas:

- **Personnel Services (\$2,243,002)** - Refers to wages and benefits paid to Energy Commission staff working in the Renewable Energy Program.
- **Pro Rata (\$3,142,490)** - A direct assessment against the Renewable Resources Trust Fund that is applied by the Department of Finance (DOF). This assessment is for the cost recovery of expenses incurred by control agencies in the administration of the Renewable Resources Trust Fund. For example, Pro Rata includes the cost of processing claim schedules, journal entries, reports, and payroll for the State Controller, and the work of the DOF budget analyst.
- **Contractual (\$1,685,189)** - Represents contracts that were expended or encumbered from the Renewable Resources Trust Fund. This expenditure includes contracts for technical services support and student assistance, and a contract with the Department of Finance for auditing services.
- **General (\$524,879)** - Signifies the operating expenses that were charged against the fund. These expenditures are in the form of general office supplies, printing, communications, postage, travel, training, facilities operations, data processing, equipment, and indirect charges.

Table VII - Interest Expenditures by Fiscal Year

Category	98/99	99/00	00/01	01/02
Personnel Services	\$671,854	\$617,681	\$642,456	\$311,011
General Expense	6,545	10,206	55,714	452,414
Contractual	742,037	604,549	330,863	7,739
Pro Rata	0	952,462	1,355,893	834,135
Total	\$1,420,437	\$2,184,898	\$2,384,925	\$1,605,299

Figure 6 - Interest Expenditures as of March 31, 2002



Section IV Voluntary and Local Publicly-Owned Electric Utility Contributions

Senate Bill 90 requires the Energy Commission to address the allocation of voluntary contributions and those made by local publicly-owned utilities. As of March 31, 2002, no contributions were made to the Renewable Resource Trust Fund from local publicly-owned utilities. Bear Valley Electric Service, an investor-owned utility, made contributions to the Renewable Resources Trust Fund totaling \$196,000. Funds collected pursuant to SB 90 are divided among program accounts according to the initial average percent-based allocations identified in the *Policy Report*, and illustrated in **Figure 1**. Contributions from Bear Valley Electric Service are not reflected in the "collected funds" category in **Table VI**.

Voluntary contributions to the Renewable Resource Trust Fund totaled \$13,447 by the end of March 2002. These funds were not allocated to a specific account nor used for other programmatic purposes; the Energy Commission will decide how to best allocate these funds at a later date.